

(19) World Intellectual Property
Organization
International Bureau



534 455

(43) International Publication Date
27 May 2004 (27.05.2004)

PCT

(10) International Publication Number
WO 2004/044573 A1

- (51) International Patent Classification⁷: G01N 27/414, 33/543
- (74) Agent: REINHOLD COHN AND PARTNERS; P.O.Box 4060, 61040 Tel Aviv (IL).
- (21) International Application Number: PCT/IL2003/000941
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 11 November 2003 (11.11.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 152746 11 November 2002 (11.11.2002) IL
- (84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
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- Published:**
- with international search report
 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: TRANSISTOR-BASED BIOSENSORS HAVING GATE ELECTRODES COATED WITH RECEPTOR MOLECULES

(57) **Abstract:** A device and method are presented for detecting analyte molecules in a medium. At least one FET (Field Effect Transistor) is provided being formed by at least one pair of source-drain electrodes and at least one gate electrode. The gate electrode is coated with a layer of receptor molecules that in the presence of said analytes catalyze a reaction that causes release of ions in a medium surrounding said receptor molecules. A monolayer of linker molecules is provided for linking said receptor molecules to said at least one gate such that a distance between the receptor molecules layer and the surface of the coated gate is smaller than 15Å. In the preferred embodiments, the receptor molecules are enzymes (e.g. acetylcholine esterase) or peptides, and the analyte molecules are pesticides, herbicides and chemical pollutants of industrial origin.

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